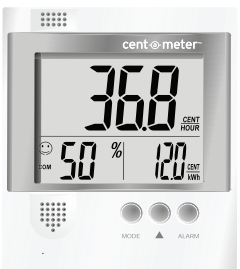
USER MANUAL

Model CM113A/CMR113A/CMS116

cent-a-meter®



User Manual

Version 12/18/2006

cent-a-meter®

(MODEL CM113A / CMR113A / CMS116)

TABLE OF CONTENTS

Table of Contents 1

Introduction 3

Key features 3

- Main unit (Receiver) – Model CM113A
- Remote Transmitter – Model CMR113A
- Current Sensor – Model CMS116
- LCD display symbols

Safety and Care Instructions 6

- Warnings
- Safety precautions
- Caring for your product

Quick Install Guide 7

How the cent-a-meter® works 8

- Overview
- Voltage and current
- Watts and Kilowatts
- Household power cables and 'phase'
- Greenhouse gas

Getting started 9

- You will need
- Unpacking the product
- Batteries
- Loading the batteries
- AC adapter
- Mounting the Centameter
- Attaching the current sensors
- Plugging the current sensors into the remote transmitter

Customizing settings 11

- Setting the voltage
- Setting the electricity voltage
- Setting the cost-per-hour currency unit
- Setting the cost-per-hour value
- Setting the greenhouse gas emissions per kW rate
- Setting the power save mode

Main unit information 13

- To display power consumption in amps

Setting the alarm 13

- Setting the alarm limit
- Activating the alarm

Using the search and check function 14

- Using the search function
- Resetting the main unit receiver and remote transmitter

Temperature and humidity 15

Troubleshooting guide 16

Specifications **16**
Declaration of Conformity **17**
Default Values **18**
Warranty **18**
Proof of Purchase **19**

centometer® is a product of WIRELESS MONITORS AUSTRALIA PTY LTD - ACN 098 657 231

Manufactured under license in China

INTRODUCTION

Thank you for selecting the cent◎meter household electricity monitor. This product was developed to educate people about the need to use energy in a sustainable manner and to not waste our scarce resources. By providing you with instant feedback about the cost of electricity consumption, university research and field trails have shown that it is possible to reduce your electricity cost by up to 20% by careful selection and operation of energy efficient appliances.

It is designed to give many years of reliable service if used correctly, and performs the following functions:

- Monitors and displays electricity cost-per-hour in dollars, pounds or euros
- Monitors and displays total household electricity consumption
- Calculates greenhouse gas emissions per hour
- Alerts user to peak load electricity limits via alarm function
- Displays temperature and humidity inside the home
- Performs a home safety function, checking operating appliances

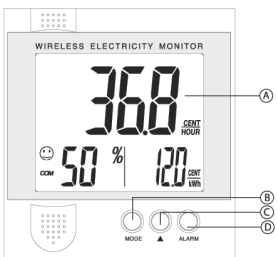
NOTE To check if you have left any appliances operating that should have been turned off when you go to bed or leave the home unattended, simply check the receiver display. If it is higher that usual, investigate the cause and turn off any unnecessary appliances. In this way you may avoid an electrical house fire.

This manual contains important safety and care information, and provides step-by-step instructions for using this product. Read the manual thoroughly, and keep it in a safe place in case you need to refer to it later.

KEY FEATURES

Main Unit - Receiver

Front view



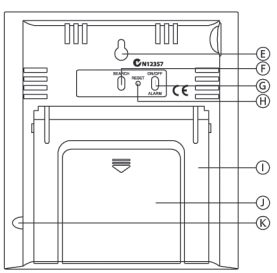
A. Main LCD Screen

B. Mode Button
a) Toggle between different display screens
b) Enable adjustment of settings

C. Adjust Button
Used to adjust values

D. Alarm Button
Enable/Adjust alarm settings

Back view



E. Wall-Mount Recess Hole
For mounting the unit to a wall

F. Search Button
To search for and calibrate with Remote Transmitter

G. On/Off Alarm Button
Turn Alarm on or off

H. Reset Hole
Returns all settings to default values.

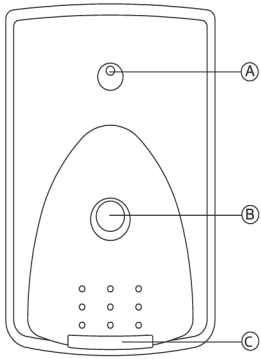
I. Table Stand
Can be pulled out and used to stand the unit on a flat surface

J. Battery Compartment

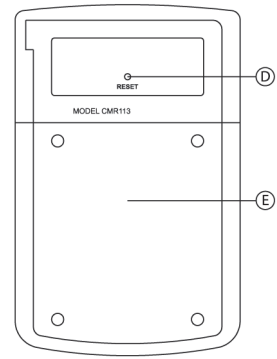
K. Plug pack power socket (optional)

Remote Transmitter

Front



Back



A. Transmit Signal Light

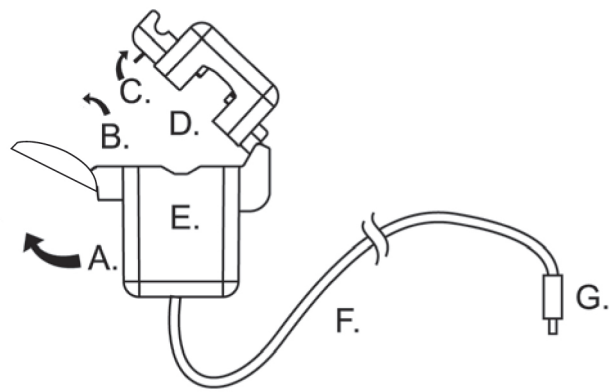
B. Check Button
Used to check reception with main unit

C. Phase Connector Cable Outlets

D. Reset Hole

E. Battery Compartment (weather proof)
Requires screwdriver to open

Current Sensors (2)



A. Hinge
B. Clip
C. Sensor top part
D. Hole for electricity phase wire
E. Sensor body
F. Sensor cable
G. Plug

LCD Display Symbols

SYMBOL	MEANING	DESCRIPTION
MAX	Maximum receiving speed	Information is received from the Transmitter every 6 seconds instead of every 1-minute. (Use with MAX set off to save battery life).
HI	Alarm limit activated	The electricity cost-per-hour peak load limit is activated. The alarm will sound if it is exceeded.
/ CENTS HOUR	Cost per hour	The instantaneous real-time cost per hour of electricity being used in your household in dollars, pounds or euros.
CENTS /kWh	Cents per kWh	The amount (tariff) that your local electricity retailer charges for electricity per kWh (Kilowatt-hours).
kW	Kilowatts	The total amount of energy being used in kilowatts
GREENHOUSE GAS	Greenhouse gas display	You are displaying greenhouse gas emissions information.
AMP	Amperes	The amount of current passing into your home
VOLT	Voltage	The voltage setting for your household power line.
KG / HOUR	Kilograms per hour	The amount of greenhouse gas emissions per hour in kilograms, emitted by the power station.
TON / YEAR	Tonnes per year	The amount of greenhouse gas emissions per year in tonnes, emitted by the power station.
%	Relative Humidity	The current humidity level in your household.
°F	Temperature (Fahrenheit)	The present temperature in your household.
COM	Humidity & Temperature condition	Shows if the environment is comfortable.
DRY	Humidity & Temperature condition	Shows if the environment is dry.
WET	Humidity & Temperature condition	Shows if the environment is wet.
-------	Alarm disabled/ Transmission broken	The alarm is disabled, or the wireless signal from the Transmitter has been broken
REMOTE MAIN	Low battery	The batteries for either the 'main' receiver or 'remote' transmitter are low on power and should be replaced with new AA alkaline batteries.

SAFETY AND CARE INSTRUCTIONS

⚠ WARNING

To ensure you use your product correctly and safely, read these warnings and the User Manual before using the product. These warnings provide important safety information and should be observed at all times

⚠ WARNINGS

Attention cent-o-meter® owner:

Your safety is very important to us. We would like your attention regarding the installation of your cent-o-meter® Sensors are to be located in the electrical panel which contains live electrical wires and components, and should therefore be installed by an electrician.

- Take precautions when handling all battery types. They can cause injuries, burns, or property damage as a result of contact with conducting materials, heat, corrosive materials or explosives. Remove the batteries before storing the product for long periods of time.
- Do not immerse the device in water.
- Do not, under any circumstances, touch the exposed electronic circuitry of the device, as there is a danger of electric shock should it become exposed.
- Take special care when handling a damaged LCD display, as the liquid crystals can be harmful to your health.
- Do not use or store the device, including the remote sensor, in locations that may adversely affect the product such as rain, snow, desert, and magnetic fields.
- Do not use this device in aircrafts or hospitals. The use of radio frequency products can cause malfunctions in the control devices of other equipment.
- Do not subject the product to impact or shock.
- When disposing of this product, do so in accordance with your local waste disposal regulations

Safety precautions

Please observe the following safety precautions when setting up and using this product.

- LCD panel – The LCD panel is made of glass, and may break if the unit is dropped or impacted.
- Heat sources – Keep the product away from heat sources such as radiators, stoves, heaters, and other heat-generating products.
- Water and moisture – Do not use the product in or near water or in high moisture areas such as a bathroom.
- Power source – The product may be susceptible to power surges, and the Current Sensor cable should be disconnected from the Transmitter during severe storms.

Caring for your product

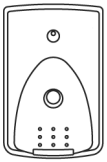
To ensure you receive the maximum benefit from using this product, please observe the following guidelines.

- Cleaning – Disconnect the Current Sensor and remove the batteries from the Remote Transmitter and the Main Unit Receiver before cleaning. Use a damp cloth. Do not use liquid cleaning agents, benzene, thinner, or aerosols.
- Air circulation - the vents and other openings allow air circulation for measurement of temperature and humidity and should not be blocked or covered.
- Repair – Do not attempt to repair the product or modify the circuitry by yourself. Contact the retailer or a qualified repairman if the product requires servicing. Only use replacement parts that are recommended by the manufacturer.
- Do not scratch hard objects against the LCD display as this may cause damage.

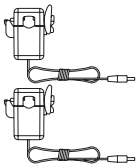
Section I Installation in 200A Service Fuse Panel

Main Unit Receiver

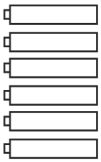
Remote Transmitter (With Wall Bracket)



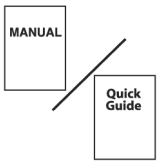
Current Sensors



Batteries x 6 AA Alkaline



User manual & Quick Install Guide



⚠ **ATTENTION CENTAMETER OWNER: Your safety is very important to us. We would like your attention regarding the installation of your Centameter. Sensors are to be located in the electrical panel which contains live electrical wires and components, and should therefore be installed by an electrician.**

Step 1: Install clip-on sensors on the two incoming lines in the electrical panel service entrance, ensuring the sensors do not interfere with the re-installation of the panel cover. Feed the sensors cables through a "knock-out" hole in the side of the panel in the direction of the transmitter.

Step 2: Find a location to mount the transmitter bracket on the wall close to fuse panel (screws not included). Check distance using sensor cables to ensure that they will comfortably reach the transmitter without stretching.

Step 3: Unscrew battery cover (4 small Phillips head x-head) on back of transmitter, install batteries and replace cover.

Step 4: Insert sensor cables into any two plugs at bottom front of the remote transmitter.

Step 5: Now remove battery cover on wireless display and install 3 remaining batteries.

(NOTE: receiver may not "find" transmitter if batteries are not installed into transmitter before receiver)

Step 6: Push "Check" button on Transmitter (red LED flashes) and then push "Reset" on receiver.

Step 7: Push "Search" on receiver and now receiver and transmitter should be communicating and displaying consumption information on the wireless display.

Step 8: For trouble shooting Guide refer to page 16

Section II Customizing Your Settings

Step 1: **Voltage** – For North America, leave at default setting of 120V. An alternate voltage can be set as follows: Press **Mode** and **Alarm** simultaneously. The voltage setting will be displayed. Press the **Mode** again. The display will blink. Press the **Arrow** key and repeat to scroll to 110V. Press **Mode** to confirm.

Step 2: **Price – Input** total price ($/kWh) on your utility bill (include all charges except for the customer charge, + taxes). Press and hold **Mode** for 2 seconds. The digits will flash. Use the **Arrow** key to adjust each value (0-9). Press **Mode** to confirm. Repeat for remaining digits. Press **Mode** to confirm.

Step 3: **Greenhouse Gas** (GHG in kg/hour per kWh):
Press **Mode** until the Greenhouse Gas value is displayed. Press and hold **Mode** for 2 seconds. The unit blinks. Press the **Arrow** key to select kg/hour. Press **Mode** to confirm. The Greenhouse Gas emission value blinks. Use the **Arrow** keys to change the rate to 1.0 kg/hour (contact your Utility to confirm). Press **Mode** to confirm.

Your cent-a-meter™ is now properly configured for use - Enjoy!

Overview

This product uses 'phase' current transformer sensing technology to detect and monitor a magnetic field around your household electricity power cable. It measures the amps being used and, by reference to the system voltage, calculates the amount of power being used, the cost, and the amount of greenhouse gas emissions. It then transmits this information from the Transmitter to a cordless Main Unit Receiver on a frequency of 433MHz, from up to 30 metres away (unbroken transmission).

> The product is primarily intended as an educational device to aid understanding of the cost of operating electrical appliances in the home. As such, it is not intended to replace your accurate electricity revenue meter, so it cannot be used to check your electricity account.

What is voltage and current?

Voltage (**volt)** is the measure of electrical potential. **Current** signifies the amount of electricity flowing through a conductive material, such as a wire. Electrical current is measured in amperes or "**amps**" for short. Both Amps and Volts are necessary to provide electricity for your household appliances. Power is measured in Watts, and is the product of Volts times Amps. For a particular location, the voltage is usually constant – so the amount of power used is directly proportional to the current used.

Watts and Kilowatts

Watt	Kilowatt (kW)	Kilowatt-hours (kWh)
A Watt is the standard unit of measurement for the amount of energy (electric or otherwise) being transferred to or from somewhere each second.	A Kilowatt (kW) is simply a larger unit of measurement (1000 watts = one kilowatt).	Kilowatt-hours (kWh) represents the use of 1000 watts of electricity for one whole hour.

Refer to the following table:
1 kWh is the equivalent of ten 100-watt bulbs burning at the same time for one hour.

Household 'power' cable and 'phase'

Most household electricity supplies use single 'phase' current, where the current flows to and from your household appliances using a 'neutral' and two 'power' lines. The neutral line has a voltage close to 0 while the 'power' lines carry a fluctuating voltage or 'phase'. The difference between these two lines makes the current flow through your appliances. The Current Sensors should be connected to each power line before using the cent-a-meter®.

Caution: the sensors should be installed by an electrician.

Greenhouse gas

Fossil fuel power stations emit gases such as carbon dioxide when producing electricity. This causes an atmospheric imbalance, which in turn has been linked to global warming (global temperature rise). Every power station has a slightly different ratio of emissions to electricity production, depending on their methods. The default greenhouse emission rate on the Main Receiver is set to1 kilogram of greenhouse gas for every 1KW of electricity produced (1:00). This can be changed depending upon the fuel or energy source used by your power generating authority (see **customized settings**).

GETTING STARTED

You will need

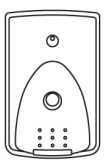
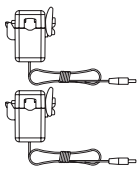
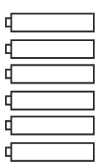
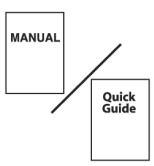
As you unpack and begin to set up your new cent-o-meter you will need the following equipment:

- User manual – for instructions on how to set up and use the product.
- A hammer and 2x 2mm head nails – to fix the mounting bracket/unit to the wall. Alternatively you may screw the bracket to the wall or simply place the transmitter carefully inside the meterbox.
- A small Philip's-head screw driver - to open the battery compartment of the Transmitter.

Unpacking the product

When you unpack your cent-o-meter make sure to keep all the packing materials in a safe place, in case you need to later transport or return it for servicing.

In the box, you will find:

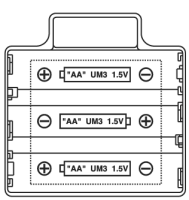
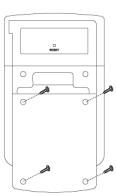
Main Unit Receiver	Remote Transmitter (with wall Bracket)	Current Sensors	Batteries x 6 AA alkaline	User Manual & Quick Install Guide
				

Batteries

The Portable Main Unit Receiver and the Remote Transmitter both use 3 x UM-3/AA 1.5V alkaline batteries. No other power source is necessary to run the units. When replacing the batteries, alkaline cells are strongly recommended.

Loading the batteries:

Main unit – Receiver

Diagram	Instructions	Diagram	Instructions
	Install the batteries by matching the correct polarity. Always use the correct battery type (**3 x UM-3/AA 1.5V alkaline batteries**). **Warning:** Reversing the polarity may damage the product.		Remove the cover with a screwdriver. Then follow the same instructions as the main unit. Once done, replace the cover and screw back the cover onto the unit.

NOTE Replace the batteries whenever the weak battery mark 'main' or 'remote' () shows, the display is dim, or the display does not illuminate when the power is on. Replace all the batteries at the same time – it is **unwise** to mix old and new batteries. Alkaline cells are strongly recommended.

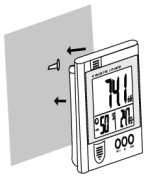
Contact your local waste disposal authority for instructions on how to dispose of used batteries. Used batteries can be harmful to the environment, and should not be thrown out with household garbage.

AC Adapter

The main unit receiver can operate with a 6.0V AC/DC adapter, which can be purchased separately.

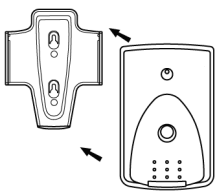
Mounting the Centameter

The Main Unit Receiver can either be placed on a flat surface with the back stand pulled out or mounted as shown below:

Diagram	Instructions
	1. Mount by using nails or screws.
	2. Hammer in nail or screw halfway.
	3. Attach main unit

The Remote Transmitter should be placed on a flat surface or mounted on a wall using the wall bracket provided within 30 metres of the Main Unit Receiver. It should be mounted outside of the electrical meter or fuse box, if these are made of metal. **WARNING: If installed inside a metal meter box, the signal transmission distance between the remote transmitter and the main receiver will be reduced.**

To fix the wall bracket follow the instructions below:

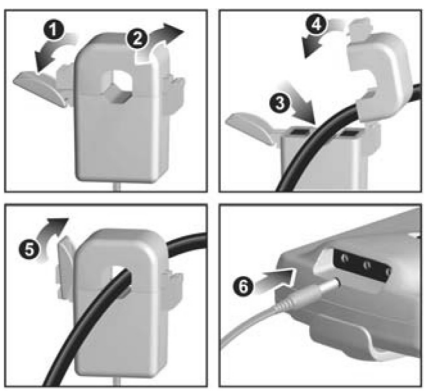
Diagram	Instructions
	1. Position the wall bracket.
	2. Insert nail or screw through the mounting hole.
	3. Hammer in nail or fix the screw halfway.
	4. Attach wall bracket.
	5. Slide Remote Transmitter into place.

Attaching the Current Sensor

Caution: the sensors should be installed by an electrician.

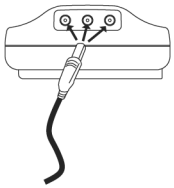
To attach the Current Sensors to the household power lines (see **HOW** cent-a-meter® **WORKS)** follow the steps below:

1. Open the clip.
2. Lift the top of the Sensor away.
3. Place the main household active or phase cable into the Sensor cable hole.
4. Close the top of the Sensor.
5. Close the clip.
6. Plug the Sensor Transmitter cable into any one of the Transmitter jacks.



Plugging the Current Sensors into the Remote Transmitter

Once the Current Sensors are attached to the household power lines you may plug them into any two of the three outlets in the Remote Electricity Monitor by following the steps below:

Diagram	Instructions
	1. Choose one of the three outlets.
	2. Plug in.

WARNING: The signal wiring (approx 1volt, 1 milliamp) on the current sensors are double insulated suitable for installation in a 240 volt domestic power supply meter box. When passing through an enclosure opening the wiring should be protected from sharp edges by fixed bushes.

WARNING: Do not allow the monitor to be used if it is damaged, or its safety is impaired

It is possible to purchase an additional Current Sensor to handle a 3-phase service. This may be useful in buildings with high rates of power consumption such as factories or offices. If more than one Current Sensor is in use the total power consumption rate displayed will be a combined reading.

CUSTOMIZING SETTINGS

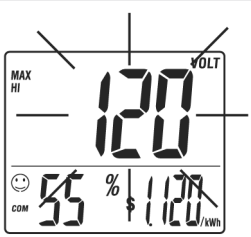
When the Remote Transmitter and Current Sensors have been connected, the Centameter Main Unit Receiver immediately starts receiving information. The LCD screen displays electricity consumption and greenhouse gas readings based on default factory settings (see **SPECIFICATIONS**). In order to obtain a more accurate reading, it is advisable to make more customized settings.

Setting the Voltage

NOTE As the default value is 120V, a voltage setting is not required for a product used in North America.

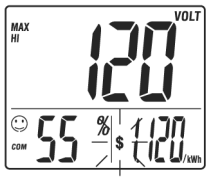
The 'voltage' of the power line you are monitoring (see **Voltage and current)** can be set by following the instructions below

Setting the electricity voltage (default is 120V; to reset to 120V remove and re-install batteries).

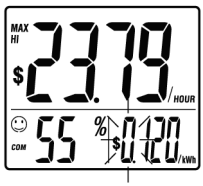
Diagram	Instructions
	1. Press **mode** and **alarm** simultaneously. The current voltage setting is displayed.
	2. Press **mode** again. The voltage value blinks.
	3. Use the **arrow key** to change the value. (110-250)
	Press **mode** when finished.

The Centameter initially displays the electricity cost-per-hour as a default or factory setting of 12 cents per kWh (**see Watts and Kilowatts**). To find the local electricity charge per kWh, refer to your last electricity bill and then change the currency unit and value by following the instructions below:

Setting the cost-per-hour currency unit

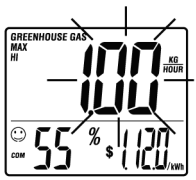
Diagram	Instructions
	1. Press **mode** and **alarm** simultaneously.
	2. The currency value blinks. Use the **arrow key** to change the flashing value (in $, £, or €)
	3. Press **mode** to set value.
	4. Press **mode** when finished.

Setting the cost-per-hour value

Diagram	Instructions
	1. Press and hold mode for 2 seconds. The first digit of the electricity cost-per-hour flashes.
	2. Use the **arrow key** to change the flashing value (0-9). Press **mode** to set value. Repeat for all digits.
	3. Press **mode** when finished.

Setting the greenhouse gas emission per kW rate (see Greenhouse Gas)

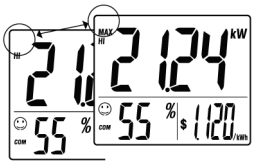
To set the unit and rate of greenhouse gas emissions per electric current production (see **Greenhouse gas**) follow the instructions below:

Diagram	Instructions
	1. Press mode to change to the Greenhouse Gas display.
	2. Press and hold **mode** for 2 seconds.
	3. The Greenhouse Gas emission unit blinks. Use the **arrow key** to toggle between units (Kg/Hour or Ton/Year). Press **mode** to confirm.
	4. The Greenhouse Gas value blinks. Use the **arrow key** to change the value.
	5. Press **mode** again to return to the Greenhouse gas display.

NOTE It may be necessary to change this setting depending on where you live. If a precise rate is required or if you have purchased a “Green Energy” product, contact your local electricity retailer.

Setting the Battery power save mode

You can save battery power by changing the receiving speed of the Main Unit Receiver from every 6 seconds (MAX) to every minute. To change the setting, follow the instructions below:

Diagram	Instructions
	1. When ‘MAX’ icon is displayed, press and hold the arrow key for 2 seconds.
	2. The ‘MAX’ icon disappears. Repeat these steps to re-enable “MAX’ receiving speed.

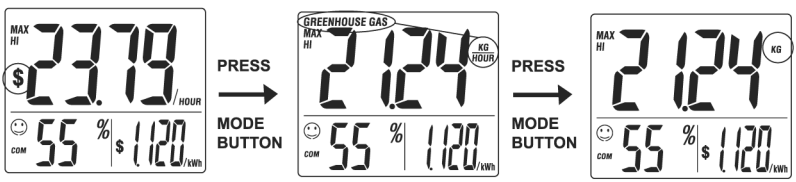
NOTE Use the standard real-time update cycle until you have become familiar with the cost of operating electrical appliances around your home. Afterwards change the receiver to cycle every 1 minute to greatly increase the lifetime of the receiver batteries from about 4 months to over 12 months.

MAIN UNIT INFORMATION

After customizing your cent-o-meter® three types of information can be displayed on the main unit:

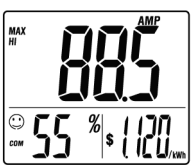
- cost of household power consumption in dollars/pounds/euros per hour
- amount of greenhouse gas emissions produced in kilograms per hour or tons per year
- current household power consumption in kilowatts or amps (see **Voltage and Current, Watts and Kilowatts**)

To display the information, simply use the **mode** key to switch between screens.



To display power consumption in amps

Household power consumption can be displayed in terms of amps instead of kilowatts (see **HOW cent-o-meter® WORKS**). To display the amount of electrical current passing into your home (amps), instead of the power (kW) follow the instructions below:

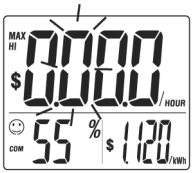
Diagram	Instructions
	1. After having selected the power display in kW by pushing mode repeatedly, press and hold mode for 2 seconds. The AMP display is shown.
	2. Press mode again to return to kW display.

SETTING THE ALARM

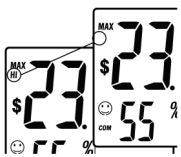
The cent-o-meter® comes equipped with an alarm that alerts users when the electricity cost-per-hour exceeds a pre-set limit.

This helps control energy consumption and may reduce bills and the possibility of blackouts during peak load periods.

To set the alarm limit
To set the alarm limit follow the instructions below:

Diagram	Instructions
	1. Press alarm key once while in the "cost mode".
	2. Use the arrow key to change a value.
	3. Press alarm again and continue until all values are set.

Activating the alarm
To activate the alarm follow the instructions below:

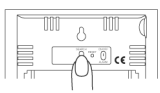
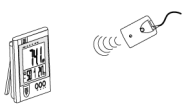
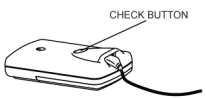
Diagram	Instructions
	1. On the back of the unit locate the grey alarm on/off button (furthest to the right).
	2. Press the alarm on/off button once to activate or deactivate the alarm.
	3. The Hi icon will appear when the alarm is activated and disappear when it is deactivated.

NOTE The alarm will sound and the display will flash when the alarm limit is exceeded. It will cease if the cost-per-hour falls below the limit, or you can press any button to stop the alarm. A "——" message means the alarm is disabled.

USING THE SEARCH AND CHECK FUNCTIONS

The cent-o-meter® Main Unit Receiver and Remote Transmitter include search and check functions to quickly re-establish a connection should the transmission be broken (i.e. if the units are too far apart, or experience interference from other devises such as a radio or television).

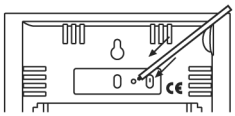
Using the search function
To activate the search and check function, follow the instructions below:

Diagram	Instructions
	Locate the **search** button on the back of the main unit receiver (left hand grey button). Press once and hold for 2 seconds (unit will beep twice).
	Connection with the Remote Electricity Monitor will be re-established. If no connection can be made, locate the **check** button on the remote transmitter. Press once.
	Press the **search** button on the back of the main unit receiver again as in step 1.

NOTE Make sure you press the search button within 30 seconds of activating the check function. If a connection is not made try resetting both the Main Unit Receiver and the Remote Transmitter. If you are resetting to re-establish a connection between the units, the main receiver unit must be reset first

Resetting the Main Unit Receiver and the Remote Transmitter

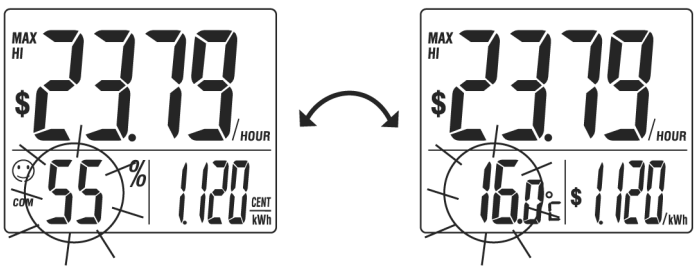
To reset both units to default factory settings follow the instructions below:

Diagram	Instructions
	1. Locate the reset point on the back of the Portable Main Unit.
	2. Push a blunt stylus (pen) gently into the reset point.
	3. Follow the same steps for the Transmitter.

NOTE If you are resetting to re-establish a connection between the Remote Transmitter and the Main Unit Receiver, then the Main Unit Receiver must be reset first.

TEMPERATURE AND HUMIDITY

An added feature of the centmeter is a temperature and humidity display function. Both temperature and humidity are alternately displayed in the bottom lett hand corner of the Portable Main Unit for three seconds. Humidity is shown as a %, and temperature in degrees Fahrenheit °F .



An additional feature of the humidity display is a series of icons to indicate if the environment is comfortable, dry or wet:

Zone	Temperature	Relative Humidity
☺ ***COM***	**20 – 25 °C** **68 - 77 °F**	**40 – 70%**
☹ ***DRY***	**Any**	**<40%**
😖 ***WET***	**Any**	**<70%**
	<20°C or > 25°C	**40 – 70%**

NOTE The readings given are for the surrounding environment and may a change according to the position of the unit. HHH or LLL will be shown if the temperature is over or under range (+50 to –5c).

TROUBLESHOOTING GUIDE

This section includes a list of frequently asked questions for problems you may encounter with your Centameter. If your cent⊙meter® is not operating as you think it should, check here before arranging for servicing.

Problem	Symptom	Check this	Remedy
No power or no reading	Power will not turn on or no display reading on LCD screen	Batteries are exhausted	Replace with new alkaline batteries
		Batteries are inserted incorrectly	Insert the batteries correctly (→ **Batteries**)
"----" reading	"----" display readings on LCD screen	Remote and Main Unit are out of synchronisation or transmission has been broken	Reset both units
"0.00" reading	Current not detected	No power being used or sensor incorrectly installed.	Check sensor installation
Alarm	"----" reading in Alarm mode	Alarm disabled	Activate alarm
"----" flashing	Automatic search underway	-	Allow search to run to completion
Main unit receiver receives data from another remote transmitter	Display does not respond as expected	Incorrect transmitter detected during installation or following battery replacement or "reset"	Refer to installation instructions

NOTE After resetting the main unit receiver it may take up to 2 minutes to re-establish the communications link. This can be expedited by pressing the "CHECK" button on the remote transmitter for 2 seconds (beep) to force transmissions every 2 secs

SPECIFICATIONS

Dimensions

Main Unit- Receiver

Width x Height x Depth	107 W x 117 H x 30 D mm
Weight	160 g

Remote Transmitter

Width x Height x Depth	78 W x 113 H x 40 D mm
Weight	110 g

Power On Factory Default Settings:

AC voltage	120 V
1kg CO2	1 kW/hr
GHG unit (greenhouse gas) Kg/Hour	
GHG conversion	1 kg CO2 = 1 kW/hr
Tariff charge (cost-per-hour)	12.0 cents per kWh
Temperature unit	°F
Currency	$ and cent
Hi alarm	$2.00/hour, on
Receiving cycle	MAX 6 second
Display Mode	Cost rate display

Current (RMS) Accuracy:

	Tolerance
Less than 1A	Not Specified
1A to <3A	<10 %
3A to 71A	<5 %
Maximum Operating Current 71AMPS	
Selectable AC Voltage Setting	110,220,230,240,250 Volt

Radio frequency:

System	433 MHz radio frequency
Range	30 metres in open areas (partitions, walls, and electrical appliances may affect reception range)

Power:

Power supply	Main receiver – 3 x AA / 1.5v alkaline batteries (or 6.0V AC/DC adapter) Remote transmitter – 3 x AA / 1.5v alkaline batteries

Operating environment:

Operation temperature	5° C … 45° C (41° F…113° F) at 85% relative humidity
Storage temperature	-5° C ….60° C (23° F … 140° F) at 85% relative humidity

Compliance:
Manufactured to ISO9000 Quality Assurance Standards and tested for compliance with European CE Certification. RTTE/CE approved (Europe), FCC, UL (USA), IC, CSA (Canada) and applicable Australian and New Zealand Communications and Electricity Authorities Regulations. N12357

DECLARATION OF CONFORMITY

Name:	Wireless Monitors Australia Pty Ltd

Declare that the product

Product No:	CM113A
Product Name:	Centameter
Manufacturer:	IDT Technology Limited
Address:	Block C. 9/F Kaiser Estate, Phase1, 41 Man Yue St, Hung Hom, Kowloon, Hong Kong

Is in conformity with IC / FCC and UL rules as tested to cETLus standards.

This device is intended for use in North America. This equipment complies with the essential requirements for the Radio Equipment and Telecommunications Terminal Equipment Directive 1999/EC

WARNING: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the users authority to operate the equipment.

DEFAULT VALUES

FUNCTION	DEFAULT VALUES	CUSTOMISED SETTINGS
A C Voltage	120 volt	
Greenhouse gas emission rate kW	1.0	
Greenhouse gas unit	kg/hour	
Tariff charge (cost per kWh)	12 cents per kWh	
Currency	$ and cents	
Hi alarm	$2.00 / hour, HI on	
Battery save (receiver)	MAX off (battery save off)	

WARRANTY

LIMITED ONE YEAR WARRANTY

This cent meter is provided with the following warranty, subject to the following conditions:

Wireless Monitors Australia Pty Ltd warrant this product for a period of 1 year from date of purchase for all defects in workmanship or materials. All defective parts will be replaced or repaired free of charge.

The following exclusions do not exclude the purchaser from those statutory rights consumers have under consumer laws that exist in North America.

Warranty Conditions

1. The product should be installed in strict accordance with instructions. Wireless Monitors Australia Pty Ltd will not accept liability for any damage or injury caused by mis-use or Non-compliance with the instructions
2. Warranty will only be given where proof of purchase date is provided. Eg. original invoice or copy.
3. This instrument must not be modified in any way.
4. Batteries are specifically excluded from this warranty.
5. Wireless Monitors Australia Pty Ltd will not be liable for indirect, consequential or incidental damages.
6. Wireless Monitors Australia Pty Ltd reserves the right to change specifications or designs described in this manual without notice or obligation.

This product is distributed under license from Wireless Monitors Australia Pty Ltd by Eco-Response Technologies Inc.

Internet: http://www.eco-response.ca Email: info@eco-response.ca Phone: 416-591-0101

Return Policy

1. Your cent◎meter® is guaranteed for a period of 12 months from the date of purchase, subject to the conditions listed above. All defective units should be sent to the address shown below using a registered form of post.

2. Repaired and or replacement units will be supplied with 30 days of receipt of the unit(s) from the customer, with the customers being advised of any delay beyond this timeframe

3. To ensure returns for defective unit(s) are processed quickly, customers are required to send with returned unit(s) proof of purchase details as shown on the following page

WARRANTY PROOF OF PURCHASE

If you need any service or warranty support, please contact the Supplier giving the following details:

Product Name: **Centameter -** Model CM113A, CMR113A, CMS116

Purchaser Name and Address: .....

.....

Supplier Name and Address: .....

.....

Date of Purchase: .....

Receipt or Invoice Number .....

NB Send a copy of this page and a copy of purchase receipt or invoice with the unit(s) you are returning